REMARKS

The Office Action dated January 4, 2007 has been carefully reviewed. Applicants request reconsideration of this application in light of the remarks presented herein.

§103 REJECTIONS – DEVANATHAN/McKELLOP

Claims 49, 50, 52, 55, 125-129, and 132 were rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 5,645,594 to Devanathan et al. (hereinafter "Devanathan") in view of U.S. Patent No. 6,165,220 to McKellop et al (hereinafter "McKellop"). In this Response, Applicants have amended claims 49, 52, 125, and 129. Applicants have also canceled claims 55 and 127 with the limitations of such canceled claims being incorporated into their respective base claims. Reconsideration of this application is respectfully requested.

In the 1/4/07 Office Action, the Examiner indicated:

> "...it would have been obvious to one of ordinary skill in the art at the time the invention was made to have irradiated the articulating surface of the Devanathan et al. bearing with e-beam irradiation, as taught by McKellop et al., *to produce gradient cross-linking on its articulating surface for wear resistance*." (emphasis added).

This is a similar rejection to what had previously been issued in the 7/17/06 Office Action. In response to the 7/17/06 Office Action, Applicants pointed out that it is well known, and in fact acknowledged in McKellop at column 4, lines 30-41, that crosslinking polyethylene to increase its wear resistance necessitates the tradeoff of other physical properties. As applied to the case at hand, Applicants noted that *one skilled in the art would not be motivated to e-beam irradiate Devanathan's bearing since doing so would lead to a reduction in its stiffness and creep resistance thereby destroying the intent of Devanathan's invention of a bearing having increased stiffness and creep resistance.* In response to Applicants' arguments, the Examiner sustained the rejection in the 1/4/07 Office Action and asserted that he relies on

McKellop for the notion of surface-gradient crosslinking the bearing surface. In short, the Examiner posited that crosslinking the Devanathan implant does not destroy the intent of Devanathan since it is a surface-gradient crosslinking that is being used, and, as such, crosslinking does not extend into the "bulk" of the implant.

The composite prosthetic bearings of Applicants' independent claims 49 and 125 are not formed by surface-gradient crosslinking, but rather are fabricated by molding separate layers of polyethylene to one another. In the case of independent claim 49, a layer of crosslinked polyethylene is molded to a non-crosslinked layer of polyethylene, whereas in the case of independent claim 125, a first layer of polyethylene that is crosslinked to a first degree is molded to a second layer of polyethylene that is crosslinked to a second, different degree. To more clearly distinguish Applicants' molded bearing of claim 49 from surface-gradient crosslinking, Applicants have herein amended claim 49 to recite the notion that the crosslinked layer of polyethylene is uniformly crosslinked throughout (i.e., "wherein said first side of said crosslinked layer of polyethylene is crosslinked to the same degree as the second side of said crosslinked layer of polyethylene"). Claim 125 has been amended in a similar matter (i.e., "said first layer of polyethylene is radiation crosslinked to a first degree from said first side thereof to said second side thereof").

The combination of Devanathan and McKellop does not teach uniformly crosslinking the outer layer from the bearing surface to the melt-fuse line. Nor would anyone modify the references to do so for the very reasons put forth by the Examiner. Namely, as pointed out in the 1/4/07 Office Action, the Examiner believes that Devanathan's intent of a bearing having <u>increased</u> stiffness and creep resistance is not destroyed by surface-gradient crosslinking that does not extend into the bulk of the implant. With this in mind, no one skilled in the art would utilize surface-gradient crosslinking to uniformly crosslink the outer layer all the way down to the melt-fused interface since to do so would, *ipso facto*, require a significant portion of the underlying layer(s) of the implant beyond the melt-fused interface to likewise be

crosslinked. This is true since the dosage required to produce a similar degree of crosslinking at the melt-fused interface as the degree of crosslinking at the bearing surface (i.e., the degree which produces the desired wear resistance) would cause crosslinking, perhaps substantial crosslinking, to occur in the implant at a depth beyond the melt-fused interface. In other words, to create such a similar degree of crosslinking throughout the outer molded layer of Devanathan's implant would cause crosslinking beyond the melt-fused interface. To crosslink into the portion of Devanthan's implant beyond the melt-fused interface would, *ipso facto*, cause crosslinking into the portion of the implant containing PMMA. Realizing that PMMA was added to Devanathan's implant to increase the stiffness and creep resistance of Devanathan's implant (see Devanathan at column 2, lines 37-45) and also realizing that, as pointed out in Applicants previous Response to Office Action dated 10/17/06, it is known that crosslinking can lead to a reduction in stiffness and creep resistance, Applicants argue that no one skilled in the art would crosslink the PMMA-containing layer of Devanathan's implant. To do so would be self-defeating. Namely, Applicants argue that no one skilled in the art would add material the underlying layer of the implant to increase its stiffness and creep resistance (i.e., PMMA) only to then subsequently subject the same underlying layer of the implant to a process which reduces stiffness and creep resistance (i.e., crosslinking).

In short, Applicants maintain their position that one skilled in the art would not be motivated to e-beam irradiate Devanathan's implant since doing so would lead to a reduction in its stiffness and creep resistance thereby destroying the intent of Devanathan's invention of a bearing having increased stiffness and creep resistance. However, even if, for argument's sake, the Examiner is correct and the intent of Devanathan's invention is not destroyed by surface-gradient crosslinking, such is the case only if the surface-gradient crosslinking does not extend into the bulk of the implant. However, it is certainly not the case when surface-gradient crosslinking is utilized in a manner that penetrates beyond the melt-fuse line of Devanathan's

implant since crosslinking Devanathan's PMMA-containing layer(s) is certainly contrary to Devanathan's effort to produce an implant with increased stiffness and creep resistance.

As a result, the Devanathan/McKellop combination does not arrive at the invention of currently amended claims 49 and 125. Nor can the the Devanathan/McKellop combination be further modified to arrive at the invention of currently amended claims 49 and 125 without destroying the intent of Devanathan's invention. As such, it is respectfully requested that the §103 rejection of claims 49 and 125 be withdrawn. Because the remaining claims are dependent on either claims 49 or 125, it is respectfully requested that the rejection of these claims likewise be withdrawn.

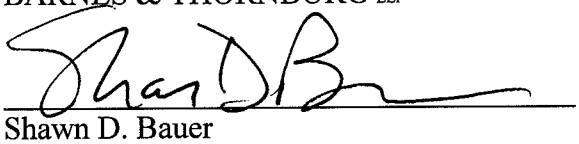
CONCLUSION

In view of the foregoing, it is submitted that this application is in a condition for allowance. Action to that end is hereby solicited.

It is respectfully requested that, if necessary to effect a timely response, this paper be considered as a Petition for an Extension of Time sufficient to effect a timely response and shortages in other fees be charged, or any overpayment in fees be credited, to the Account of Barnes & Thornburg, Deposit Account No. 10-0435 with reference to file 265280-68002.

Respectfully submitted,

BARNES & THORNBURG LLP



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